REMARKS

This paper is submitted in response to the Office Action mailed on January 11, 2006. Claims 9, 13, 14, 18 and 34 have been amended, claims 11, 19 and 20 have been canceled and claims 48-59 have been added. In addition, the previously withdrawn claims 1-8, 21-29, 36, 38 and 41-44 have been canceled. Claims 9, 10, 12-18, 30-35, 37, 39, 40, and 45-59 now remain in the application. Applicants note and appreciate Examiner's indication of the allowability of claims 11, 19, 20 and 45-47. In view of the foregoing amendments, as well as the following remarks, Applicants respectfully submit that this application is in complete condition for allowance and requests reconsideration of the application in this regard.

Claims 14 and 15 were rejected under 35 U.S.C. § 112 as being indefinite for lacking proper antecedent basis for "said first and second removable stops." Claim 13, from which claim 14 depends, has been amended to depend from claim 10, which provides proper antecedent basis for the first and second removable stops. Accordingly, Applicants respectfully request the objections be withdrawn.

Claims 9, 13, 16, 17, 18, 34 and 37 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,306,142 to Richards ("Richards"). In the Office Action, the Examiner asserts:

> Regarding claims 9 and 13, Richards discloses an archwire assembly (Figs. 10-11), including: an archwire (79); a crimpable sleeve (82) adapted to slide along the archwire (column 1, lines 39-41); and an abrasive/friction-creating substance (85) applied to the crimpable sleeve (column 1, lines 25-38).
>
> Regarding claims 16 and 17, the friction-creating substance (46), as seen in Fig. 5, at least partially fills the crimpable sleeve and at least

partially coats the archwire, especially when crimped (column 1, lines 54-57).

Regarding claim 18, the friction-creating substance is inherently removable, because it could be scraped or broken off when dried by means of a dental instrument, such as a scaler.

Regarding claims 34 and 37, Richards discloses an inherent method of applying a crimpable sleeve to an archwire and limiting the movement of the sleeve via the friction-creating substance.

Office Action, p. 3. Applicants respectfully disagree.

Richards is directed to a crimpable hook (28) mountable on an archwire between two adjacent brackets (24) prior to or subsequent to placement of the archwire (26) in the brackets. The hook (28) includes a tubular member (35) with an opening (40) for receiving archwire (26) and a hook (43) extending therefrom. An inner surface (42) of the tubular member (35) includes an abrasive layer or coating (46). When the crimpable hook (28) is crimped, such as by a pair of wire cutters (50), as shown in Figs. 4 and 5 of Richards, the abrasive coating (46) engages the archwire (26) at various contact points caused by the crimping. The engagement of the archwire and the abrasive coating increases the friction between the two to inhibit the tubular member (35) from sliding along the archwire (26) after the hook (28) is crimped thereto.

In regard to independent claim 9, although Applicants disagree that Richards anticipates claim 9, to advance prosecution of this case toward allowance, claim 9 has been amended to more clearly distinguish over Richards. In particular, claim 9 has been amended to recite that the friction-creating substance is adapted to limit movement of the crimpable sleeve along said archwire "when the sleeve is uncrimped." Such a recitation highlights a major difference between that disclosed in

Richards and the invention recited in claim 9.

As noted above, Richards is concerned with solving the problem of the crimpable hooks moving relative to the archwire after the hook is crimped to the archwire. For example, in the background section of Richards, it states:

> Even when these crimpable bodies are crimped, they tend to slide along the archwire when forces are applied to them. This is considered a disadvantage or problem by some orthodontists who would prefer the crimpable ball hook to remain in a fixed location on the archwire at all times. Thus, all known crimpable or collapsible hooks and/or stops suffer from a lack of adequate friction to keep them from sliding along the wire even when they are forcibly crimped onto the wire. (emphasis added)

(Richards, Col. 1, lns. 39-48). In the summary section of Richards, it states:

> The abrasive coating, which may be applied to all or part of the inner surface, engages the archwire when the hook or stop is crimped, thereby significantly increasing the friction between the hook or stop and the wire, after crimping, to a level that resists sliding along and rotating on the wire. (emphasis added)

(Richards, Col. 1, lns. 55-60). Richards includes many other passages that make it clear that the problem being solved is movement of the hook after crimping. For instance, Richards states:

> The engagement of the archwire and the abrasive coating on the inner surface of the member at these contact points significantly increases the friction on the archwire to a sufficient level to inhibit the tubular member from sliding along and rotating on the archwire. Thus, the crimpable hook will substantially remain in the fixed location when the hook is crimped onto the archwire.

(Richards, Col. 5, lns. 6-13).

The invention of claim 9, however, is not directed to preventing movement of the crimpable sleeve relative to the archwire after the sleeve is crimped thereto. Instead, the invention of claim 9 is directed to limiting movement of the crimpable sleeve

along the archwire prior to crimping the sleeve or "when the sleeve is uncrimped". The specification of the present application identifies various problems that are addressed by the invention of claim 9, namely reducing or eliminating field assembly and limiting the movement of the crimpable sleeve along the archwire to facilitate installation and preventing separation of the sleeve from the archwire after being positioned thereon. Richards does not recognize the problems being addressed by the present invention and consequently does not teach or suggest using the abrasive coating to limit the movement of the crimpable hook along the archwire prior to the hook being crimped. The crimpable hook disclosed in Richards would presumably suffer from the same drawbacks that are being addressed by the present invention of claim 9 in that they would be capable of free movement along the archwire prior to crimping. Although Applicants believe that claim 9 defines over Richards, Applicants have amended claim 9 to further clarify that the "friction-creating substance [is] adapted to limit movement of said crimpable sleeve along said archwire when the sleeve is uncrimped." Richards does not teach or suggest using the abrasive coating to limit the movement of the hook when the sleeve is uncrimped, but only after being crimped. Accordingly, Applicants respectfully submit that claim 9 is allowable and the rejection should be withdrawn.

Claim 34 has also been amended and in a manner similar to claim 9. In particular, the claim has been amended to recite "limiting movement of the crimpable sleeve along the archwire when the sleeve is uncrimped." Thus, for the same reasons provided above for claim 9, Applicants respectfully submit that Richards fails to teach or suggest the combination of elements recited in independent claim 34 and the rejection

should be withdrawn.

Moreover, as claims 13, 16, 17 and 18 depend directly or indirectly from allowable independent claim 9 and further as each of these claims recites a combination of elements not taught or suggested by the prior art of record, Applicants respectfully submit that these claims are allowable as well and the rejections should be withdrawn.

In regard to claim 17, the Examiner asserts that the abrasive coating "at least partially coats the archwire.." Applicants respectfully disagree. Richards only teaches applying the abrasive coating to the entire area or selective areas of the inner surface of the tubular member. (Col. 4, Ins. 19-21). There is no teaching or suggestion that the abrasive coating may be applied to the archwire itself. Thus, for this further reason, Applicants submit that claim 17 is allowable and the rejection should be withdrawn.

In regard to claim 18, the Examiner asserts that the abrasive coating "is inherently removable, because is could be scraped or broken off when dried by means of a dental instrument, such as a scaler." Claim 18 has been amended to recite that the friction-creating substance is removable "when said sleeve is positioned on said archwire." Richards does not teach or suggest removing the abrasive coating at all from the hook and removing the abrasive coating from the hook in the manner suggested by the Examiner would not be possible when the hook is on the archwire. Thus, for this further reason, Applicants submit that claim 18 is allowable and the rejection should be withdrawn.

In regard to claim 37, as claim 37 depends from allowable independent claim 34 and further as this claim recites a combination of elements not taught or suggested by the prior art of record, Applicants respectfully submit that claim 37 is allowable as well and the rejection should be withdrawn.

Claims 10, 12, 14, 15, 30-33, 39 and 40 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Richards in view of U.S. Patent No. 4,764,112 to Bergersen ("Bergersen"). In the Office Action, the Examiner asserts:

> Regarding claims 30-32, Richards, as described earlier, discloses a crimpable sleeve, movable along the archwire with a hook that may be used to anchor an elastic, ligature or spring at any point along the archwire (abstract). Richards fails to disclose an additional removable stop applied to the archwire. Bergersen discloses a removable distal stop, which secures the archwire within the mouth and permits relatively easy removal of the wire from the teeth as well as easy position adjustability, which is required as the posterior teeth or [sic] moved (column 1, lines 29-36, 63-66). Although the crimpable sleeve of Richards is securely attached to the wire, it may not be positioned directly next to the buccal tube, thus allowing movement of the archwire. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the stops disclosed by Bergersen on the archwire assembly disclosed by Richards in order to secure the archwire from the medial/distal translation and to provide a more efficient and less time consuming means for repositioning the wire when needed (column 2, lines 10-15).

(Office Action, p. 4). Applicants respectfully disagree.

Bergersen is directed to an attachment means (24) on an archwire (16) that permits the archwire (16) to be easily secured to, removed from and repositioned relative to the buccal tubes (20) to which the archwire (16) is connected. The attachment means includes a molded covering (26) which covers a length of the archwire (16) just anterior to a free posterior end (28) of the archwire (16). The covering (26) is sufficiently large so as to prevent the covering (26) from entering the buccal tube

(20). The archwire (16) has a roughened outer surface (38) underlying a mesial or posterior end (39) of covering (26). A distal portion (30) of the covering (26) overlies a smooth outer surface of the archwire (16) so that the distal portion (30) may be trimmed away to ensure a proper fit of the archwire (16) in a patient's mouth.

The covering includes an elongated tab (40) extending from the mesial end (39) and includes an opening (42) sized to receive the free end (28) of the archwire (16). The tab (40) is stretched distally so that the opening (42) may be placed over the free end (28) of archwire (16). The stretching force on the tab (40) is released causing the tab (40) to contract and clamping the archwire (16) to the buccal tube (20). The distal end (34) of the covering (26) abuts against the mesial end (36) of the tube (20) such that rearward pressure of the archwire (16) will be transmitted to the tooth through the engagement of the covering (26) with the tube (20). As the posterior teeth start to move, in order to continue treatment, a spacer (44) may be interposed between the buccal tube (20) and the covering (26).

The rejection of claim 30 is improper because the Examiner failed to present a *prima facie* case of obviousness. In particular, there is no motivation to combine the references in the manner suggested by the Examiner and the Examiner is using hindsight reconstruction to purportedly arrive at the claimed invention. Richards discloses using the crimpable hook in two types of applications. In one application, the crimpable hooks are used for intermaxillary fixation, which prevents or reduces relative movement of the jaws (Fig. 1 of Richards). The other application is for moving the posterior teeth by either a lip bumper (Fig. 9) or a face bow (Fig. 12). In these

applications, crimpable stops (81a, 81b) are applied to the archwire at selected locations so as to abut the buccal tubes (78a, 78b) and apply a distal force to the buccal tubes either by the lip bumper or by the face bow via the archwire. Bergersen discloses using the attachment means to apply a distally-directed force to the buccal tubes in order to move the posterior teeth.

When used for intermaxillary fixation, the goal is to prevent relative movement of the jaws, not to promote the movement of the posterior teeth. Consequently, one of ordinary skill in the art would not modify the device disclosed by Richards by adding the attachment means of Bergersen when used for intermaxillary fixation. In short, the purpose of the attachment means in Bergersen is to apply a force to the posterior teeth and the movement of the posterior teeth is not a consideration in intermaxillary fixation.

In regard to the other application disclosed in Richards directed to the lip bumper and face bow and using the crimpable stops, it appears that both Richards and Bergersen are directed to moving the posterior teeth. In Richards, the crimpable stops are used to apply the pressure to the buccal tubes. In Bergersen, the attachment means is used to apply the pressure to the buccal tubes. Thus, if one of ordinary skill in the art were to take anything away from these two references, it would be that the crimpable stops in the device of Richards could be replaced by the attachment means disclosed in Bergersen. There would be no reason to have both the crimpable stops and the attachment means on the archwire, as they both perform the function of transmitting the force on the archwire to the buccal tubes.

There is no teaching, suggestion or motivation in either Richards or Bergersen, for modifying the device of Richards in the manner suggested by the Examiner to arrive at the invention of claim 30. Moreover, as stated above, there are several good reasons why the modification suggested by the Examiner would not be made. Instead, the Examiner is using impermissible hindsight reconstruction to arrive at the invention of claim 30. The Examiner has simply combined bits and pieces of the prior art with no teaching, suggestion or motivation, other than that provided in the present application. Such a rejection is improper. Accordingly, the rejection of claim 30 is improper and should be withdrawn.

Moreover, as claims 31-33 depend from allowable independent claim 30 and further as each of these claims recites a combination of elements not taught or suggested by the prior art of record, Applicants respectfully submit that these claims are allowable as well and the rejections should be withdrawn.

In regard to claims 10, 12, 14 and 15, for the reasons stated above for claim 30, Applicants submit that these claims are allowable as well and the rejections should be withdrawn. In addition, claims 10, 12, 14 and 15 depend from allowable independent claim 9. For this further reason, Applicants respectfully submit that these claims are allowable and the rejections should be withdrawn.

In regard to independent claim 39, for the reasons stated above for claim 30, Applicants submit that this claim is allowable and the rejection should be withdrawn. Moreover, as claim 40 depends from allowable independent claim 39, Applicants submit that this claim is allowable as well and the rejection should be withdrawn.

Claims 34 and 35 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,571,179 to Balenseifen ("Balenseifen"). In the Office Action, the Examiner asserts:

> Balenseifen discloses a novel orthodontic archwire, which is arcuately curved to provide precise and detailed movement of teeth (column 1, line, 63-column 2, line 12). The disclosed invention includes a crimpable sleeve (18) applied to the archwire for supplying additional force to correct and retain the teeth in a better alignment (column 3 lines 1-4), which is crimped in order to limit its movement (column 3, lines 57-64). It is well known to package archwires and orthodontic appliances for delivery to a doctor's office. Because, the crimpable sleeve and archwire are specifically disclosed for use with each other, and the archwire is not a standard wire that could be found in the doctor's office, it would have been obvious to one of ordinary skill in the art at the time of the invention to package the entire archwire assembly together for delivery. In doing so, the practitioner has all the components necessary to carry out the disclosed orthodontic treatment.

(Office Action, p. 6). Applicants respectfully disagree.

Balenseifen is directed to an adjustable retainer (10) that includes a transverse closed loop (14) to correct teeth and maintain teeth in the proper alignment. To correct one or more teeth without disturbing the retention of the remaining teeth, the retainer (10) may include one or more split sleeves (18) to apply an addition force to selected teeth. Prior to placement of the sleeve, the archwire is provided with a V-shaped indentation (28) in its surface. The split sleeve (18) is then positioned around the archwire and the V-shaped indentation intermediate the wall length of the sleeve, the wall of the sleeve (18) is forcibly crimped inwardly into the indentation (28). This maintains the sleeve at the proper tooth contacting position with respect to the adjacent tooth and to prevent longitudinal movement of the sleeve relative to the archwire.

Although Applicants believe the rejection of claim 34 is improper, claim 34 has been amended to more clearly define over Balenseifen and advance prosecution of the case toward issuance. In particular, claim 34 has been amended to recite "limiting movement of the crimpable sleeve along the archwire while the sleeve is uncrimped." Balenseifen does not teach or suggest limiting movement of the split sleeve (18) prior to crimping the split sleeve onto the archwire. The Examiner recognizes that Balenseifen only teaches that the split sleeve has limited movement only upon crimping: "The disclosed invention includes a crimpable sleeve (18)..., which is crimped in order to limit its movement (column 3, lines 57-64)." (Office Action, p. 6). Accordingly, Applicants submit that claim 34 recites a combination of elements not taught or suggested by the prior art of record and the rejection should be withdrawn.

In regard to claim 35, Applicants respectfully disagree with Examiner. As discussed in the specification of the present application, the conventional technique for applying a crimipable sleeve to an archwire is for a medical professional to thread the archwire through the crimpable sleeve in the field, such as in the doctor's office. Such a technique has disadvantages addressed by the present invention. Claim 35 recites "packaging the archwire assembly for delivery to a doctor's office," wherein the archwire assembly (as recited in claim 34, from which claim 35 depends) includes the crimpable sleeve applied to the archwire. Balenseifen does not teach or suggest applying the split sleeve to the archwire prior to delivering the archwire to a doctor's office. Moreover, solely relying on the knowledge of one of ordinary skill in the art, without more, is improper. In addition, claim 35 depends from allowable independent claim 34. For

these reasons, Applicants submit that claim 35 is allowable and the rejection should be withdrawn.

Claim 48 was added through this amendment. Claim 48 recites the subject matter of allowed claim 11 in independent form. Accordingly, Applicants submit that this claim is allowable.

Claim 49 was added through this amendment. Claim 49 recites the subject matter of allowed claim 19 in independent form. Accordingly, Applicants submit that this claim is allowable.

Claim 50 was added through this amendment. Claim 50 depends from allowed independent claim 34. Accordingly, Applicants submit that this claim is allowable as well.

Claim 51 was added through this amendment. Claim 50 recites the subject matter of allowed claim 45 in independent form. Accordingly, Applicants submit that this claim is allowable.

Claims 52-54 were added through this amendment. Claims 52-54 depend from allowed independent claim 9. Accordingly, Applicants submit that these claims are allowable as well.

Claims 55-59 were added through this amendment. Claims 55-57 depend from allowed independent claim 30. Accordingly, Applicants submit that these claims are allowable as well.

Conclusion

In view of the foregoing response including the amendments and remarks, this application is submitted to be in complete condition for allowance and early notice to this affect is earnestly solicited. If the Examiner believes any matter requires further discussion, the Examiner is respectfully invited to telephone the undersigned attorney so that the matter may be promptly resolved.

Applicants believe that excess claim fees are due in connection with this response. However, if a petition is due or any additional fees are necessary, the Commissioner may consider this to be a request for such and charge any necessary fees to deposit account 23-3000.

Respectfully submitted,

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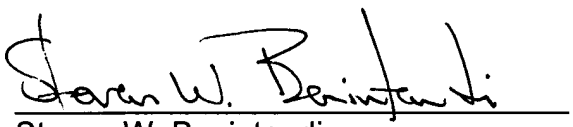

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